

Non-technical Abstract

We have investigated the possibility of transferring a gene into a growing brain tumor. The purpose is to make the tumor sensitive to a type of chemotherapy that is relatively non-toxic to the rest of the body. The gene we have selected is the Herpes Simplex thymidine kinase (HS-tk) gene. Herpes Simplex is virus that can be killed by a drug called ganciclovir. By transferring the HS-tk gene into the tumor, using a disabled virus called a "vector", we then essentially convert the tumor to be like a herpes virus and now the tumor can be killed with ganciclovir.

Experiments in rats have shown that the direct injection of mouse cells producing a HS-tk vector into a growing brain tumor can result in complete destruction of the tumor with ganciclovir therapy. We found no evidence of spread of the virus to the normal brain tissue or to other parts of the body. Based upon these findings, we have proposed a human clinical trial to determine if the direct injection of the HS-tk producer cells into growing human brain tumors will regress with GCV therapy. The patient population consists of individuals who have failed standard therapy and have recurrent primary or metastatic brain tumors with an expected survival of weeks to a few months.